

**From:** Bushman, Daniel [Bushman.Daniel@epa.gov]  
**Sent:** 4/14/2020 9:06:45 PM  
**To:** Schechter, Kathryn [Schechter.Kathryn@epa.gov]  
**CC:** Turk, David [Turk.David@epa.gov]  
**Subject:** RE: Scope of PFAS definition

## Ex. 5 Deliberative Process (DP)

Daniel R. Bushman, Ph.D.  
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**From:** Schechter, Kathryn <Schechter.Kathryn@epa.gov>  
**Sent:** Tuesday, April 14, 2020 4:53 PM  
**To:** Bushman, Daniel <Bushman.Daniel@epa.gov>  
**Cc:** Turk, David <Turk.David@epa.gov>  
**Subject:** RE: Scope of PFAS definition

Don't forget to **Ex. 5 Deliberative Process (DP)**

Dr. Kathy Schechter  
Chemist, Industrial Chemistry Branch (MC-7406M)  
1201 Constitution Ave., NW  
Washington, DC 20460  
Telephone: (202) 564-8589  
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**From:** Bushman, Daniel <Bushman.Daniel@epa.gov>  
**Sent:** Tuesday, April 14, 2020 4:44 PM  
**To:** Schechter, Kathryn <Schechter.Kathryn@epa.gov>  
**Cc:** Turk, David <Turk.David@epa.gov>  
**Subject:** RE: Scope of PFAS definition

It also doesn't help **Ex. 5 Deliberative Process (DP)**

## Ex. 5 Deliberative Process (DP)

It will be interesting to see what ORD suggests.

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**From:** Schechter, Kathryn <[Schechter.Kathryn@epa.gov](mailto:Schechter.Kathryn@epa.gov)>  
**Sent:** Tuesday, April 14, 2020 4:37 PM  
**To:** Bushman, Daniel <[Bushman.Daniel@epa.gov](mailto:Bushman.Daniel@epa.gov)>  
**Cc:** Turk, David <[Turk.David@epa.gov](mailto:Turk.David@epa.gov)>  
**Subject:** RE: Scope of PFAS definition

Thanks Dan. It is hard to come up with a definition when you do not know what the limitations are! We have seen all kinds of structures: **Ex. 5 Deliberative Process (DP)** For example, **Ex. 5 Deliberative Process (DP)**

## **Ex. 5 Deliberative Process (DP)**

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**From:** Bushman, Daniel <[Bushman.Daniel@epa.gov](mailto:Bushman.Daniel@epa.gov)>  
**Sent:** Tuesday, April 14, 2020 4:27 PM  
**To:** Schechter, Kathryn <[Schechter.Kathryn@epa.gov](mailto:Schechter.Kathryn@epa.gov)>  
**Cc:** Turk, David <[Turk.David@epa.gov](mailto:Turk.David@epa.gov)>  
**Subject:** RE: Scope of PFAS definition

Hi Kathy,  
I was excluding

## **Ex. 5 Deliberative Process (DP)**

# **Ex. 5 Deliberative Process (DP)**

Dan

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**From:** Schechter, Kathryn <[Schechter.Kathryn@epa.gov](mailto:Schechter.Kathryn@epa.gov)>  
**Sent:** Tuesday, April 14, 2020 3:37 PM  
**To:** Bushman, Daniel <[Bushman.Daniel@epa.gov](mailto:Bushman.Daniel@epa.gov)>

Cc: Turk, David <Turk.David@epa.gov>

Subject: RE: Scope of PFAS definition

Hi Dan. All comments are welcome! Not sure if I am understanding you correctly. It sounds like you think

Ex. 5 Deliberative Process (DP)

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From: Bushman, Daniel <Bushman.Daniel@epa.gov>

Sent: Tuesday, April 14, 2020 3:20 PM

To: Schechter, Kathryn <Schechter.Kathryn@epa.gov>

Cc: Turk, David <Turk.David@epa.gov>

Subject: Scope of PFAS definition

Hi Kathy,

Thought I would share my 2 cents worth for the 8(a) call. For the PFAS scope I suggest

Ex. 5 Deliberative Process (DP)

### Ex. 5 Deliberative Process (DP)

# Ex. 5 Deliberative Process (DP)

ATSDR Fact Sheet:

"In perfluoroalkyl substances all carbons except the last one are attached to fluorines. The last carbon attaches to the functional group.

In polyfluoroalkyl substances at least one (but not all) carbons are attached to fluorines."

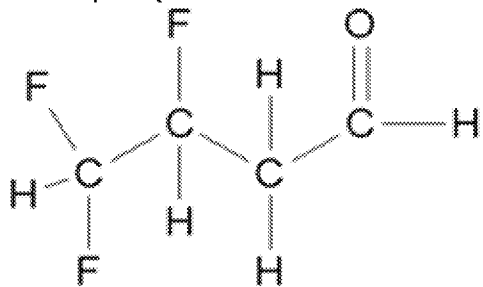
By having the last carbon not connected to a fluorine you exclude the category of chemicals called perfluorocarbons:

"Perfluorocarbons are a group of chemicals composed of carbon and fluorine only. Perfluorocarbons are powerful greenhouse gases that were introduced as alternatives to ozone depleting substances."

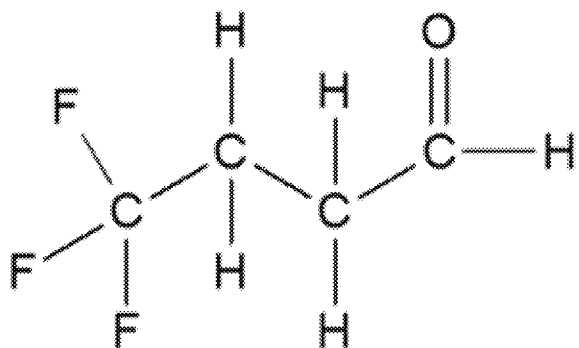
The perfluorocarbons up through butane are all gases.

So  $C_4F_3R_5$  would be the starting formula where the Rs need to be defined.

Example (in this case the Rs are the Hs and O):



If we wanted to include a CF<sub>3</sub> as a requirement then the base structure would be:



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